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General Headquarters, Washington, D. C.

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THE PLANE WHICH SIR ROSS SMITH FLEW FROM LONDON TO AUSTRALIA

This standard Vickers-Vimy bombing plane, equipped with two Rolls-Royce "Eagle VIII" engines of 360 horsepower each, is the same type of machine with which Sir John Alcock made the non-stop trans-Atlantic flight. (See Bulletin No. 3)

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Earthquakes and Tidal Waves

THERE is no natural phenomenon more deeply interesting and yet so little understood as the earthquakes and tidal waves which have from earliest history devastated the earth and carried terror and dismay into the hearts of all survivors.

Up to 1903, it is computed by an eminent scientist, there had been 159,782 recorded earthquakes. In later years, when more accurate records have been kept, they have averaged about sixty a year. There is comfort to the dwellers in most of the world to know that 94 per cent of recorded shocks have occurred in two narrow, well-defined belts—one called the Mediterranean, with 53 per cent to its credit, and, the other, the Circum-Pacific, with 41 per cent—while the remainder of the world has only 6 per cent, widely distributed.

U. S. Had One Major Quake

The United States has been singularly free from recorded seismic disturbance, perhaps the most disastrous being in 1811, when a severe shock occurred in the Mississippi Valley south of the Ohio, which was felt in New York in one direction and in the West Indies in another. This earthquake changed the face of the earth. A vast extent of land was sunk, lakes were formed, and even the course of the Mississippi was obstructed for a time.

Most of the earthquakes occurring of late years can hardly be classed with the great ones of history, nearly all of the destruction being caused by uncontrollable fires. In the more stable zones long periods may elapse between shocks, as for instance, in Kingston, Jamaica, 215 years intervened.

The cause of earthquakes and volcanoes is an elusive problem, not yet settled to the satisfaction of the scientist. Tremors of the earth may be caused by many things. The explosion of mines, falling in of caves, slipping of rock strata, and many other movements of the earth may cause them; but for the great shocks which have recurred almost since the history of the world began we must look further.

Still Ignorant of Causes

Though many times there seems to be an intimate connection between earthquakes and volcanoes, the law regarding them has not been established.

Some remarkable coincidences have been observed in late years. The terrible cataclysm of Mount Pelee, which, on May 8, 1902, almost instantly killed 30,000 inhabitants, was preceded by the earthquakes which in January and April of the same year wrecked a number of cities in Mexico and Guatemala. The distance between these points is at least 2,000 miles, showing how deep-seated must have been the disturbance, if, as has been suggested, there was communication between them.

It is also a significant fact that the fuming island off the coast of Alaska, called Bogoslof No. 3, appeared at almost the same time as the most violent eruptions of Vesuvius recorded in many years. A revenue cutter, visiting this island, was astonished to see that the mountain, or hill, some 400 feet high, on the island, had disappeared, and in its place a bay had been formed. Soundings showed a depth of from 8 to 25 fathoms of water.

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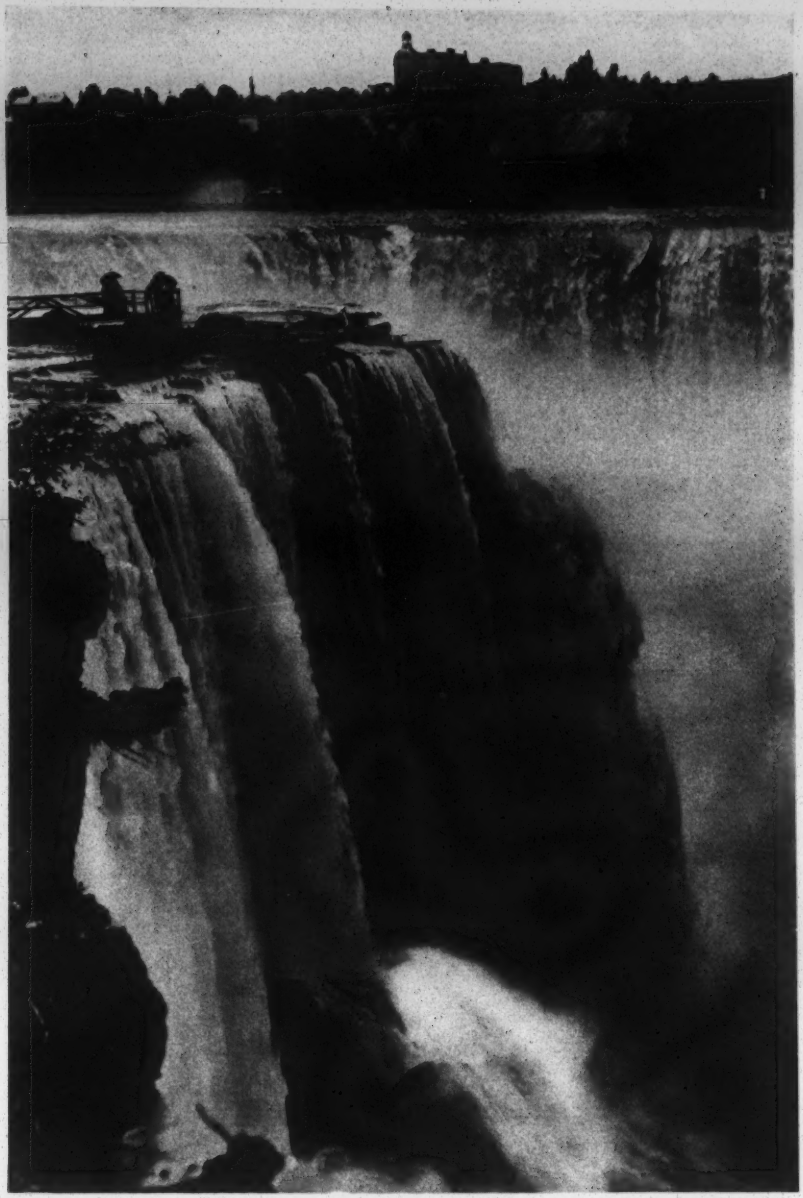

Photograph by Ernest Fox. © *National Geographic Society.*

HORSESHOE FALLS FROM GOAT ISLAND. (See Bulletin No. 2)

The shimmering softness of the cataract has been transformed by a miracle of industry into a sure rock of defense. From the seemingly insecure wooden causeway shown to the left the spectator commands a wonderful panoramic view of the very heart of Niagara.

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Our State Park Systems

"STATE parks? I did not know there were any," said a geographer who could tell you, off hand, the latitude of Hyderabad or the mandates of Polynesia.

Millions more know their city parks from everyday use, and they have been or hope to go to their national parks, but the phrase "State parks" is news.

Yet, twenty-six or more States will be "at home" this summer to several million motorists, "tin can tourists," campers, sightseers, and lovers of the out-of-doors in general.

From One Acre Up

These state parks vary in size from the three and a third million acres of the Adirondack Park in New York State, a park with primeval forests and numerous lakes and rivers, to the one-acre sand bar in the Connecticut River which is Dart Island State Park of Connecticut.

State pride in characteristic natural features and historic sites frequently determines the selection of the State Park sites as in the cases of the Royal Palm State Park of Florida, southwest of Miami, with its luxuriant everglades; the Redwood State Park, of California, in which are some of that State's big trees; the Old Salem State Park, of Illinois, which takes in the former home of Abraham Lincoln. Practically all the State parks of Pennsylvania appear to be associated with military memories.

Scenic wonders are as various as the panorama from the river bluffs of the Nelson-Dewey State Park of Wisconsin, the curiously modeled gorges of the Mashamoquet Brook State Park of Connecticut, the canyons and gulches of the Starved Rock State Park of Illinois, the vast expanses of sand dunes of the proposed lake front park in Indiana, and the curious geology and mystery water body of Devil's Lake State Park in Wisconsin.

Tourist Links Playgrounds

Comparatively few State parks were known outside the borders of their own States a few years ago but the automobile tourist and the back-to-real-nature vacationist are blazing their way to these parks in rapidly increasing numbers from ever greater distances. The third National Conference on State Parks, to be held in the Turkey Run State Park of Indiana, May 7, 8 and 9, is an indication of this growing interest in State parks in general.

Thousands whose married life has begun to the honeymoon music of thunderous Niagara probably do not know that the American portion of the falls lies within a State park, and this particular State park has an interest even beyond that of protecting a majestic natural wonder from exploitation. Its acquisition set the legal precedent for appropriating public money for saving scenic objects for public use. The 112 acres of land surrounding the falls and the 300 more acres under water marked the first place in the United States where condemnation proceedings were employed for the sole object of preserving natural scenery.

The City of Hartford, Conn., has been congratulated by many a passenger as he entered its city on a train through its beautiful Bushnell Park; in contrast to the rail approach of so many American cities.

Quakes Preceded Great Katmai Explosion

The greatest of recent volcanic disturbances which blew the top off of Mount Katmai in Alaska and gave birth to the wonderful Valley of Ten Thousand Smokes was preceded and accompanied by a series of severe earthquakes.

Rear Admiral L. G. Billings described in an article for the National Geographic Magazine, the great tidal wave which he saw at Arica, then in Peru, some years ago. He was an officer on the U. S. S. "Wateree" which was anchored in the harbor at Arica at the time of the cataclysm.

shipping was left stranded while as far to seaward as our vision would reach, we saw the rocky bottom of the sea, never before exposed to human gaze, with

"Some time after the initial tremor," he wrote, "the sea receded until the struggling fish and monsters of the deep left high and dry. The round-bottomed ships keeled over on their beam ends, while the 'Wateree' rested easily on her floor-like bottom; and when the returning sea, not like a wave, but rather like an enormous tide, came sweeping back, rolling our unfortunate companion ships over and over, leaving some bottom up, and others masses of wreckage, the 'Wateree' rose easily over the tossing waters unharmed.

"From this moment the sea seemed to defy the laws of nature. Currents ran in contrary directions, and we were borne here and there with a speed we could not have equaled had we been steaming for our lives. At irregular intervals the earthquake shocks recurred, but none of them so violent or long-continued as the first.

Sea-bottom Laid Bare For Miles

"About 8:30 p. m., the lookout hailed the deck and reported a breaker approaching. Looking seaward, we saw, first, a thin line of phosphorescent light, which loomed higher and higher until it seemed to touch the sky; its crest, crowned with the death light of phosphorescent glow, showing the sullen masses of water below. Heralded by the thundering roar of a thousand breakers combined, the dreaded tidal wave was upon us at last.

"Of all the horrors of this dreadful time, this seemed the worst. Chained to the spot, helpless to escape, with all the preparations made which human skill could suggest, we could but watch the monster wave approach without the sustaining help of action. That the ship could ride through the masses of water about to overwhelm us seemed impossible. We could only grip the life-line and wait the coming catastrophe.

"With a crash our gallant ship was overwhelmed and buried deep beneath a semi-solid mass of sand and water. For a breathless eternity we were submerged; then, groaning in every timber, the staunch old 'Wateree' struggled again to the surface, with her gasping crew still clinging to the life-lines—some few seriously wounded, bruised and battered; none killed; not even one missing. A miracle it seemed to us then, and as I look back through the years it seems doubly miraculous now.

"Undoubtedly our safety was due to the design of the ship which permitted the water to run off the deck about as it would from a raft or floating plank.

Stranded High on Shore

"The ship was swept on rapidly for a time, but after a while the motion ceased, and, lowering a lantern over the side, we found ourselves on shore, but where, we knew not. Smaller waves washed about us for a time, but presently they ceased.

"The morning sun broke on a scene of desolation seldom witnessed. We found ourselves high and dry in a little cove, or rather indentation in the coast-line. We had been carried some 3 miles up the coast and nearly 2 miles inland. The wave had carried us over the sand dunes bordering the ocean, across a valley, and over the railroad track, leaving us at the foot of the seacoast range of the Andes. Had the wave carried us 200 feet further, we would inevitably have been dashed to pieces against the mountain-side."

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The Fascination of Flying

NEWS of the preparations by Sir Keith Smith for a flight around the world this spring recalls the tragedy of the death of Sir Ross Smith, his brother, upon the eve of such a flight. Sir Keith Smith accompanied his brother, Sir Ross Smith, on the famous London-to-Australia airplane journey. The latter further added to his fame by writing an account of that flight which already has become the classic of aerial travel.

This story, published in the "National Geographic Magazine," contained a wealth of geographic detail and technical information, but those portions which described the sensations of air travel are, perhaps, the most unusual. He wrote:

"A small machine is ideal for short flights, joy-riding in the heavens, or sight-seeing among the clouds, but there is something more majestic and stable about the big bombers which a pilot begins to love. An exquisite community grows up between machine and pilot; each, as it were merges into the other. The machine is rudimentary and the pilot the intellectual force. The levers and controls are the nervous system of the machine, through which the will of the pilot may be expressed—and expressed to an infinitely fine degree. A flying-machine is something entirely apart from and above all other contrivances of man's ingenuity.

Most Human-Like Machine

"The aeroplane is the nearest thing to animate life that man has created. In the air a machine ceases indeed to be a mere piece of mechanism; it becomes animate and is capable not only of primary guidance and control, but actually of expressing a pilot's temperament.

"The lungs of the machine, its engines, are again the crux of man's wisdom. Their marvelous reliability and great intricacy are almost as awesome as the human anatomy. When both engines are going well and synchronised to the same speed, the roar of the exhausts develops into one long-sustained boom-boom-boom. It is a song of pleasant harmony to the pilot, a duet of contentment that sings of a perfect firing in both engines and says that all is well.

"This melody of power boomed pleasantly in my ears, and my mind sought to probe the inscrutable future, as we swept over the coast of England at 90 miles per hour."

Skimming Tops of the Clouds

Of another phase of the trip, when it was determined to climb above the clouds he wrote:

"So we climbed steadily in a wide, ascending spiral, until we reached an altitude of 9,000 feet, and were then just above the clouds. Below us the snow-storm raged, but we had entered another world—a strange world, all our own, with bright, dazzling sunshine.

"It might have been a vision of the polar regions; it undoubtedly felt like it. The mighty cloud ocean over which we were scudding resembled a polar landscape covered with snow. The rounded cloud contours might have been

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Hartford and Niagara Pioneers

For five years Horace Bushnell preached to tax payers the need for buying this tract in the heart of this State Capital until, for the first time in the world's history, it is said, people voted to buy a public park to be paid for with their own money.

Neither Niagara, where one goes for a single view, nor Bushnell Park, which in effect is a city park, is typical of the State parks of today.

An Iowan may pick out a site in Keosauqua, build a summer cottage there, and go back year after year, without paying rent. In many parks camping sites are available for tents, fireplaces are provided, wood is distributed by rangers, and what might be termed a "park de luxe" is the beautiful Starved Rock State Park in Illinois which has electric lights, sewage, artesian water and fire protective apparatus.

A wilder and more primitive life is to be found in other parks, such as the Itasca State Park in Minnesota, where 22,010 acres comprise a forest and a lake, with fish of many species, and beaver and elk have been introduced.

The six score natural springs and wells of Saratoga Springs, New York, are comprised in a State reservation and the famous rock rimmed glen and shimmery cascades of Watkins Glen, in the Empire State also constitute a State park.

Parks of Military Memories

Valley Forge Park and Washington Crossing Park, in Pennsylvania, give a hint of the military associations of the Keystone State's parks. In addition there are, in Pennsylvania, reservations under the State Forest Commission which serve a like purpose and afford campers and hikers many square miles of primitive country.

Though the State park systems in some States are clear cut and well defined, in others it is difficult to determine from their designations when a park is an historic site, a place for motoring, camping, or a picnic ground. All are equally to be commended, but Connecticut's idea of a State park, such as Selden Neck, part of a beautiful island on the lower Connecticut where families may take a picnic luncheon, is very different from that of Wisconsin where you may rent an island in an up-State lake and remain there all summer.

Kentucky bids fair to follow in the steps of Illinois in selecting historic sites for parks. Two appropriate sites of the blue grass State are the place near Bardstown where Stephen Foster wrote "My Old Kentucky Home" and the place of Lincoln's birth near Hodgensville. A third is the Mammoth Cave.

Besides the recreation, the historic memories, and the natural beauties afforded by State parks there are a number which offer to scientist and observant layman alike hints of the cosmic processes which took place ages before man arrived.

Bulletin No. 2, March 5, 1923.

Form for Renewal of Bulletin Requests

Many requests for the Geographic News Bulletin were made for the year ending with a March, 1923, issue. If you desire the Bulletins continued kindly notify The Society promptly. The attached form may be used:

School Service Department
National Geographic Society
Washington, D. C.

Kindly send ..... copies of the Geographic News Bulletin for the school year beginning with the issue of February 12, for class room use, to

Name .....

Address for sending Bulletins .....

City ..... State .....

I am a teacher in ..... school ..... grade

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Earrings, and Some Notes on Gems

THE five-pound topaz brought from the interior of Brazil, according to newspaper reports, is a mere preface to the story of the trails by which most of the precious stones worn by the people of our country reach the United States.

Though we may be more or less independent about our supplies of petroleum, copper, iron and coal, and other useful minerals, and even about our deep, rich veins of gold and silver, we must buy in the marts of other countries of the world our diamonds, our rubies, emeralds and sapphires.

Big Bill for Uncut Stones

The value of the gems which we imported during 1921 was eighty times as great as the value of those produced in the United States during the same period, nearly $40,000,000 being paid for cut and uncut stones by this country. Montana, during that year, produced more than forty times as many gems as any other State and then the value of those stones was only $489,021.

The love of precious stones has, since the beginning of history, been rife in the human heart. The Pharaohs, the Babylonians, the Incas, and the resplendent court of Montezuma blazed with their glory. They figured in the religious rites of the Hebrews even from the days of the Exodus.

Their clear and unvarying color qualities have crept into our language as adjectives of more value than superlatives—for example, "The Emerald Isle," "sapphire seas," "ruby lips," "pearly teeth," and Shakespeare's "the natural ruby of your cheeks."

Birth Stone Idea Survives

Superstitions have grown up around these bits of prisoned celestial fire. The influence they were supposed to exert upon nativity, as manifested in the lore of the Jewish and Polish gem symbols of the months, or "birth stones," still is familiar.

The woman who wears carelessly a string of perfectly matched pearls from the Philippines, Burma, Borneo, or the Persian Gulf may not know that the pearl mussels made these beautiful gems because grains of sand "scratched their backs" or some foreign body chafed their flesh. In Borneo the superstitious pearl fisher preserves carefully every ninth pearl he finds, puts it in a bottle with two grains of rice for each pearl, and stops the bottle with the finger of a dead man in the belief that these pearls will reproduce others.

Used as "Fidget Beads"

Today the precious jade which comes from Burma, New Zealand, Alaska, Mexico, central Europe, and especially from the mines in the Karakash Valley in Chinese Turkestan is being made into long strings of beads to serve the same purpose as the "fidget beads," which made their official appearance at the Lausanne Conference.

Early implements and ornaments of jade have been found in the Swiss lake villages, in the caves at Mentone, and among the ruins of ancient Troy. The gem is being made into earrings for the women of today. The wearing of earrings originated in some countries in the most interesting manner. First, it

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the domes of snow-merged summits. It was hard to conceive that that amorphous expanse was not actual, solid. Here and there flocculent towers and ramps heaved up, piled like mighty snow dumps, toppling and crushing into one another. Everything was so tremendous, so vast, that one's sense of proportion swayed uncontrolled.

Eyes Stung by Snow-Blast

"The cold grew more intense. Our hands and feet lost all feeling and our bodies became well-nigh frozen. Goggles were useless, owing to the ice, and we suffered much agony through being compelled to keep a lookout with unprotected eyes—straining into the 90-miles-an-hour blast.

"The only really cheerful objects of the whole outfit were our two engines. They roared away and sang a deep-throated song, filled with the contentment and gladness; it did not worry them that their radiator blinds, which we kept shut, were thickly coated with frozen snow.

"Ahead loomed up a beautiful dome-shaped cloud, lined with silver edges. It was symbolical; and when all seemed dark, this rekindled in me the spark of hope. By the side of the 'cloud with the silver lining' there extended a gulf about two miles across. As we burst out over it I looked down into its abysmal depths.

"At the bottom lay the world. As far as the eye could reach, in every direction stretched the illimitable cloud sea, and the only break now lay beneath us. It resembled a tremendous crater with sides clean cut as a shaft.

"Down this wonderful cloud avenue I headed the Vimy, slowly descending in a wide spiral. The escape through this marvelous gateway, seven thousand feet deep, that seemed to link the realms of the infinite with the lower world of mortals, was the most soul-stirring episode of the whole voyage."

Bulletin No. 3, March 5, 1923.

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THE MORE PRIMITIVE, THE MORE JEWELS, IS AN AXIOM WHICH HOLDS GOOD IN A SURPRISING NUMBER OF CASES

These typical Samoans are the lightest of their race in color. Samoans are true Polynesians, prepossessing in appearance and manner, and of splendid physique. The men treat their women with great respect and kindness and lavish affection upon their children. They are scrupulously clean.

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California Gulf: Chesapeake of the Pacific

DISCUSSION of the development of a new Mexican harbor on St. George's Bay, in the Gulf of California, affords an interesting example of how an improvement of some natural feature may affect adjacent regions for many thousands of miles.

It is predicted that the development mentioned above would open to passenger traffic and commercial growth a rich portion of southwestern United States as well as a part of North America, on the Gulf of California, which has been little known or explored.

The Bay of St. George marks the northern limit of deep water in the Gulf of California. A short spur of track to the railroad already there would afford an all-water outlet through the Panama Canal to eastern United States for the mines of Arizona. Once, just after the Civil War, the people of the Arizona mines had all their supplies brought them from California by water, the ships steaming down the California coast up the Gulf and the Colorado River to Yuma, and now it seems that the old method of handling their products will come into vogue again.

Among World's Largest Gulfs

The Gulf of California, of which we Americans hear so seldom, ranks among the largest in the world. If it were stretched out inland over our country from New York Harbor, it would swallow up a broad stretch of country from 30 to 150 miles wide back as far as Detroit and its busy factories. It was shown on the early maps of North America as the Sea of Cortez, since this bold corsair explored it first. Its depth varies from 600 to 6,000 feet, its coast line on both sides is irregular, and in it are many islands, Angel de la Guarda and Tiburon being the largest. The latter island points its rocky crest 7,000 feet above the level of the sea, and is inhabited by a fierce and warlike tribe of Indians, the Seris, who it is claimed, have cannibalistic instincts.

Attracted Treasure Hunters

The Bay of St. George itself is a broad open sheet of water on the eastern side of the Gulf, about two hundred miles north of Guaymas, a town of 25,000 inhabitants, on Guaymas Bay, one of the most beautiful harbors in the world. Rocky Point lies on its northern edge not far from the mouth of the Sonoita River.

From its shores back into the country there are vast areas of sand-dunes, or los medanos, as the natives call them. In fact, this term is applied to the whole of the upper part of the Gulf east of the Colorado. The mere name recalls sensations of burning heat, trackless wastes, parched throats, rattlesnakes and other reptiles. Though stories of the fabulous deposits of gold and silver existing in this barren region are rife in the neighboring country, little is actually known of what wealth it contains, as most of the prospectors who have ventured into its lonely reaches have never returned to tell their stories.

The whole of this upper northwestern part of the Mexican State of Sonora

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is said, ears were pierced whenever women had been indiscreet in hearing secrets not intended for them. Later costly earrings were fashioned to console the poor ears for the suffering caused them.

To the Chinese, jade has always been known as "Yu," or "the gem," and great significance has been attached to it. They compare it to "the subtile matter of the rainbow concreted and fixed under the form of a stone." To the Aztecs it was known as the divine stone and was valued next to the emerald. It was carved in various forms of animals and birds, and was placed on their altars.

Rubies Sold Only in Sunshine

India, so long renowned as the source of gems, still yields many precious stones, among the most notable of which are the rubies of upper Burma. The natives who sell these stones believe that their best color and brilliancy are visible only in the sunlight; consequently sales must be made from nine to three o'clock, on clear days only.

Emeralds come from the mines of Muso in Colombia and from New South Wales. A few, however, have been found in Alexander and Mitchell counties, North Carolina. Our best sapphires come from Siam. They are also found in Ceylon, Burma and in Kashmir and Australia. Many very good ones, also come from the State of Montana.

Bulletin No. 4, March 5, 1923.

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THIS YOUNG SUMATRAN MATRON IS ALL DRESSED UP IN HER SILVER EARRINGS

Much significance attaches to the wearing of earrings in the island. Young girls wear them or not, as they choose. Upon marriage the bride must wear the big silver buttons, much after the fashion of our wedding rings. After the birth of the first child or when five years have elapsed, she must remove them. The sagging, buttoned ears of the old women are among their ugliest features.

is included in what is locally known as Papagueria, the home of the Papago Indians—a broad region which slopes down from the mountains in southeastern Arizona toward the Gulf of California and northward to the Gila River, and is much the same that the tribe held at the time of the coming of the Spaniards. These natives are strong and healthy, possess force of character, and are industrious and of an even temper. They have almost completely adopted the white man's garments and are fast acquiring his customs and modes of living.

Where Natives Get Salt

On the southern edge of the Bay of St. George is the Salina de St. George, a salt deposit, usually measuring about 325 feet in diameter but sometimes entirely covered by the sea, which is a favorite with the Papagos. When they need salt, the customary method is to ride to the foothills of Chujubabi, perform a certain ceremonial rite peculiar to the gathering of salt, and then walk the fifty miles to the salina in about a day and a half. There is no water to be had between the two places. The Pincate salt deposit, about fifty miles farther north of the Gulf shore, however, has always furnished the major portion of the salt supply of the Papago Indians.

The building of the harbor and the establishing of lines of trade through the Gulf of California probably will furnish anglers with a few more rare fish stories. There is a wealth of fish in multitudinous variety in its waters. Today these fish, which would furnish the material for running large canneries, are feeding innumerable pelicans, and other fish-eating birds. The natives and the Mexicans are without skill and the facilities for catching them. They usually "still-fish" at great depths for the jewfish and tortuava and kill their catches by pounding them on the head when they get them to the surface.

La Paz, the capital of the southern district of Lower California and Santa Rosalia, the shipping point for millions of dollars worth of copper each year—both lying on the western coast of the Gulf—probably will profit by the development of the new harbor.

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A GUATEMALA CITY STREET AFTER AN EARTHQUAKE. (See Bulletin No. 1)